USDA Foreign Agricultural Service
GAIN Report
Global Agriculture Information Network
Template Version 2.09

Voluntary Report - public distribution

Date: 10/23/2006

GAIN Report Number: E36135

EU-25

Dairy and Products

EU market for Whey derivatives

2006

Approved by:
Debra Henke
U.S. Mission to the EU

Prepared by:
Bob Flach from FAS/The Hague

Report Highlights:
This report describes the production, consumption and trade of dried dairy products in the EU with emphasis on the whey derivatives; sweet whey powder, demineralized whey, delactosed whey, whey protein concentrates (WPCs), whey protein isolates (WPIs), and lactose. It is generally anticipated that the EU will increasingly have a deficit of milk proteins. Opportunities for the U.S. dairy sector lay in particular in the export of WPCs with the higher protein levels, such as WPC 80. A future WTO agreement that lowers tariffs on whey derivatives should increase U.S. exports to the EU.

Includes PSD Changes: No
Includes Trade Matrix: No
Unscheduled Report
Brussels USEU [BE2]
[E3]

This report was drafted by Bob Flach, Agricultural Specialist at FAS/The Hague, The Netherlands. Any eventual follow-up questions can be sent to Bob.Flach@usda.gov.

Background

This report describes the production, consumption and trade of dried dairy products in the EU with emphasis on whey derivatives. In contrast to production figures for non-fat dried milk (NFDM), whole dried milk (WDM), casein and whey powder, official production figures for whey derivatives are not available. In this report, the total production of whey is estimated from the production of cheese, curd and casein. Based on sector information, an estimation is made of the extent to which whey is further processed into whey derivatives: demineralized whey, delactosed whey, whey protein concentrates (WPCs), whey protein isolates (WPIs) and lactose.

Production of dairy derivatives

EU production of milk powders, cheese, casein, whey and whey derivatives (1,000 Metric Tonnes)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	***2006***
NFDM (a)	*1,200*	1,215	1,369	1,326	1,066	1,075	975
WDM (a)	*900*	918	870	865	857	840	790
Cheese, ripened (a)	5,581	5,865	5,993	6,100	6,371	6,480	*6,580*
Cheese, fresh (b)	1,450	1,400	1,339	1,258	1,138	1,076	*1,000*
Casein (c)	169	184	151	163	174	177	*135*
Liquid Whey	*68,687*	*71,273*	*70,820*	*71,438*	*73,149*	*73,848*	*72,540*
Liquid use (d)	*11,000*	*10,000*	*9,000*	*8,000*	*7,000*	*6,000*	*5,000*
Total Whey Proteins	*317*	*337*	*340*	*349*	*364*	*373*	*371*
Total Whey Lactose	*2,769*	*2,941*	*2,967*	*3,045*	*3,175*	*3,257*	*3,242*
Whey powder (e)	1,490	1,500	1,515	1,515	1,600	1,650	*1,630*
Demineralized whey(f)	*120*	*130*	*140*	*150*	*160*	*170*	*170*
Delactosed whey (f)	*125*	*120*	*115*	*110*	*105*	*100*	*100*
WPC 34	*170*	*180*	*180*	*185*	*185*	*190*	*200*
WPC 50	*28*	*30*	*30*	*32*	*34*	*35*	*35*
WPC 60	*18*	*20*	*20*	*22*	*24*	*25*	*25*
WPC 75	*14*	*16*	*16*	*20*	*20*	*20*	*20*
WPC 80	*13*	*14*	*16*	*19*	*19*	*18*	*16*
WPI	*14*	*16*	*16*	*17*	*18*	*18*	*18*
Total WPC >34	*87*	*96*	*98*	*108*	*115*	*118*	*114*
Total WPC	*243*	*260*	*262*	*276*	*282*	*290*	*296*
Lactose (g)	*340*	*350*	*350*	*360*	*370*	*380*	*390*
Other lactose use	*1,168*	*1,255*	*1,270*	*1,334*	*1,390*	*1,422*	*1,407*

Italicized figures are estimates of OAA The Hague based on sector information. (a) Source USDA. (b) Including curd. Based on figures of the Dutch Product Board for Dairy (PZ). (c) Source EC. (d) Liquid whey is still used as feed product. (e) Number includes sweet whey powder, demineralized and delactosed whey. Source: Zentrale Markt- und Preisberichtstelle für Erzeugnisse der Land-, Forst- und Ernährungswirtschaft (ZMP) and PZ. (f) Sector sources estimate production of demineralized at 170,000 MT and delactosed whey 75,000 - 120,000 MT. (g) Source: ZMP.

EU production of NFDM and WDM declined significantly during the past three years. This is mainly due to increased production of cheese. This development is a consequence of cuts in intervention prices and export restitutions for milk powders and butter. In 2006, milk powder production is anticipated to decline further due to lower milk deliveries. Mainly as a result of the increased production of ripened cheeses, availability of whey increased significantly in the EU during the past five years. The whey has been increasingly processed

into powdered form due to the environmental regulations, which limited the possibility to discharge whey as a waste product, and feed safety regulations, which limited the use of liquid whey as feed product. In some countries, mainly in the new Member States, there is still an important quantity of whey, which is not dried into whey powder or whey derivatives. But also in The Netherlands about 600,000 MT of liquid whey is still used as feed. As a result of the environmental and feed safety regulations, an increasing part of the liquid whey has been processed into whey powder and in particular whey protein concentrates. EU production of WPC 34 is estimated to have increased by more than 10 percent while whey protein concentrates with higher protein contents are estimated to have increased by more than 30 percent during 2000 - 2005. The production of lactose also increased during this period. An unknown volume of the lactose has, however, been processed into lactose derivatives such as sucrose, glucose, galactose, tagatose, lactitol, lactulose.

Recent agricultural policy reforms have influenced the whey processing industry in 2005 and 2006. Due to subsidy cuts on the production of casein, casein production is expected to decline by about 25 percent in 2006. This trend is supported by EC figures for casein production during the first half of 2006. As a result, acid whey production is expected to decline. Despite the lower availability of liquid whey, however, sector sources believe production of WPC 34 is forecast to increase this year. This forecast is based on the further reduction of NFDM production during 2006. During the first six months of 2006, EU NFDM production declined reportedly by more than ten percent. In addition, the support for the use of NFDM in feed is being terminated. WPC 34 is commonly used as replacement of NFDM in the feed and ice cream industry as it has about the same protein content. Also production of demineralized and delactosed whey is expected to remain on a high level in order to fulfill the demand by the food and feed industry. The relatively high price of lactose has also a positive effect on the production of delactosed whey. Overall, production of most whey protein concentrates is expected to increase due to the strong demand by the food industry, both domestically and on the world market. Russia and China have shown strong growth in demand. Total EU production of WPC 80, however, is believed to have declined as WPC 34 production gives reportedly a better return at this moment. Another factor is reportedly that WPC 80 is partly produced from acid whey, which is anticipated to decline as casein production is reduced. As a consequence of the increased production of whey derivatives, also production of sweet whey powder is expected to decline.

Market for dairy derivatives

EU consumption of dairy derivatives (1,000 Metric Tonnes)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	***2006***
NFDM (a)	900	985	989	1,013	950	956	*865*
WDM (a)	400	416	357	368	343	348	*351*
Whey powder (b)	*1,560*	*1,540*	*1,560*	*1,540*	*1,590*	*1,620*	*1,580*
WPC and WPI (c)	*230*	*250*	*250*	*265*	*275*	*280*	*285*
Lactose	*310*	*325*	*325*	*330*	*330*	*315*	*325*
Casein	*155*	*175*	*140*	*135*	*135*	*125*	*110*

Italicized figures are derived from production and trade figures. (a) Source USDA. (b) Whey powder with a protein content lower than 15 percent, including sweet whey powder, demineralized and partly delactosed whey. (c) Whey powder with a protein content higher than 15 percent.

As more whey and whey processing technologies became available, the market for whey derivatives was initially production driven. Due to the reduced availability of WDM, and in particular NFDM in the EU, the use of whey powder and WPCs increased. In recent years, there is a growing demand from mainly the food industry, and the production of whey powders and WPCs is market driven. Whey derivatives are used as ingredients in a wide

range of products. The derivatives with the lowest value are predominantly used by the feed industry. Derivatives with a higher value, such as WPCs and WPIs, are produced for the food, cosmetic and pharmaceutical sector. Also, a price differential exists depending for which application the derivate is produced. Generally derivatives produced for pharmaceuticals are the most expensive, due to the high standards requested.

EU markets for dairy derivatives (1,000 Metric Tonnes) in 2005

	Feed	Processed Food	Health & Functional Foods	Pharmaceuticals & Cosmetics
NFDM	400 (a)	570		
WDM		350		
Whey powder (b)	700 (c)	920		
WPC 34	80 (c)	100		
WPC >34		100		
Lactose	(d)	315		
Casein		125		
Total	1,300 (e)	2,500		

(a) Source EC. (b) Including sweet whey powder, demineralized and delactosed whey. (c) Sector information. (d) Permeate, a by-product from whey purification, contains a high percentage of lactose and is used as feed ingredient. (e) Source FEFAC.

In total about 1,300,000 MT of dairy products are consumed by the feed sector. According to trade sources, a maximum of half of the domestic whey powder production, including demineralized and delactosed whey, is consumed by the feed sector. On an annual basis, this totals about 700,000 MT. The feed sector mainly uses sweet whey powder and delactosed whey. An important market for these whey derivatives is the veal sector. The remaining part is predominantly NFDM, of which about 400,000 MT is annually subsidized by the EC. Feed use of WPC 34 is estimated at about forty percent of total production, about 80,000 MT, but food applications are increasing. In particular the market for health-oriented foods is growing. Due to the limited availability of NFDM, however, traders expect feed demand for WPC 34 to remain strong. WPC>34, lactose and casein are mainly sold to the food sector. A small volume of WPC 80, is however, also produced or imported for utilization in the feed market. Purified lactose is both used in food and pharmacy sector. At the moment, demand for lactose is high, as there is more standardization of protein content for products destined for the export market. The chocolate industry is reportedly searching for alternatives, but other industries, such as producers of baby food, are restricted to the use of lactose. As a result, trade sources expect that despite lower sugar prices, lactose prices will remain on a high level.

Trade in dairy derivatives

Since 2004, EU milk powder exports have declined as a result of shrinking domestic production. In contrast, EU exports of whey derivatives are rising as a result of increased production. These exports reportedly mainly consist of demineralized whey. As a consequence of import tariffs, EU imports of milk powders and whey derivatives are relatively small, with the exception of casein. So far, the Doha Round did not result in agreement to lower the import tariffs. Domestic market developments could, however, change the situation. During the 2004, 2005 and the first half year of 2006, imports of whey powder, WPC and lactose have already been rising.

EU exports of dairy derivatives (1,000 Metric Tonnes)							
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	***2006***
NFDM	452	279	264	343	283	195	*130*
WDM	590	503	516	505	517	494	*440*
Whey powder (a)	175	210	212	241	281	301	*320*
WPC and WPI (b)	28	28	27	27	28	28	*30*
Lactose	29	29	27	32	41	76	*85*
Casein	76	78	79	86	91	92	*65*

Source: World Trade Atlas. (a) Whey powder with a protein content lower than 15 percent, mainly demineralized whey. (b) Whey powder with a protein content higher than 15 percent.

EU imports of dairy derivatives (1,000 Metric Tonnes)							
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	***2006***
NFDM	77	61	41	58	26	7	*12*
WDM	2	4	7	6	3	2	*1*
Whey powder (a)	3	2	2	2	1	0.5	*2*
WPC and WPI (b)	0.1	0.8	0.5	0.3	0.9	1.4	*5.0*
Lactose (c)	-	4	2	2	2	13	*18*
Casein	63	68	67	58	51	41	*40*

Source: World Trade Atlas. (a) Whey powder with a protein content lower than 15 percent. (b) Whey powder with a protein content higher than 15 percent. (c) The EU imports lactose for inward processing, which is not included in the number.

EU imports of dairy derivatives (million Euro)							
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	***2006***
NFDM	104	99	46	77	33	12	*20*
WDM	4.2	8.5	9.1	7.7	5.5	4.3	*3*
Whey powder (a)	2.7	2.0	1.1	1.7	1.6	1.1	*2.0*
WPC and WPI (b)	0.3	2.1	1.6	0.6	2.7	3.4	*7.0*
Lactose	1.9	3.8	2.6	2.7	2.4	7.5	*10*
Casein	236	292	219	174	194	190	*200*

Source: World Trade Atlas. (a) Whey powder with a protein content lower than 15 percent. (b) Whey powder with a protein content higher than 15 percent.

EU prices of dairy derivatives (Euro)				
	2003	**2004**	**2005**	**2006**
NFDM	2,031	2,044	2,014	1,977
WDM	2,505	2,557	2,485	2,295
Whey powder	354	420	517	640
WPC	N/A	N/A	N/A	N/A
Lactose	1,150	1,173	1,215	1,209
Casein	3,987	4,877	5,967	5,311

Source: Product Board for Dairy. N/A: not available

U.S. prices of dairy derivatives (Euro)					EU import tariffs (Euro per Metric Ton)	
	2003	2004	2005	2006	Tariff	Tariff Quota
NFDM	1,572	1,480	1,643	1,475	1,188	475 MT
WDM	N/A	N/A	N/A	N/A	1,304	
Whey powder	324	396	490	561	70	
WPC	967	1,033	1,259	1,395	1,357	
Lactose	409	408	329	410	140	
Casein	3,940	4,649	5,818	5,474	9%	

Source: Product Board for Dairy. Note that prices of products in the EU and the U.S. are difficult to compare as the specifications could differ.

Opportunities for the U.S. dairy industry

U.S. exports of dairy derivatives (1,000 Metric Tonnes)						
	2001	2002	2003	2004	2005	*2006*
NFDM	96	126	141	231	300	*250*
WDM	0	0	0	0	0	*1*
Whey powder	169	178	165	198	258	*300*
WPC (a)	25	27	25	37	68	*100*
Lactose	47	42	52	61	75	*75*
Casein	3	2	3	3	3	*3*

Source: Global Trade Atlas and BICO. (a) HS codes 0404100500 and 0404100850.

It is generally anticipated that the EU will increasingly have a deficit of milk proteins as the production of milk is stagnating while the demand for milk proteins by both the feed and in particular the food market is growing. In addition, a growing portion of the milk protein is used for cheese production. Shrinking NFDM production could further drive prices up for whey derivatives, opening the door for imports.

The U.S. dairy sector has increased exports of NFDM partly due to increasing world market prices. More opportunities for the U.S. dairy sector lay in the production and export of whey and whey derivatives, as milk and cheese production are forecast to increase, and the use of liquid whey is declining. U.S. exports of whey protein concentrates quadrupled during 2000 – 2005. Industry sources anticipate U.S. exports of whey derivatives will increase further. According Dutch trade sources, the best opportunities lay in the WPCs with the higher protein levels as tariffs are relatively lower for higher value products. During 2005 and 2006, U.S. exports of WPC 80 to the EU reportedly increased, partly due to greater availability in the U.S., but mainly due to lower WPC 80 production in EU. During the first five months of 2006, EU imports of WPCs more than tripled, despite the EU import tariffs and transport costs (about EURO 120 per MT). A WTO agreement that lowers tariffs would be beneficial for further increasing exports of whey derivatives to the EU. With lower tariffs, industry sources believe the EU industry would have great difficulty competing with bulk whey derivatives. Anticipating increased competition in the future, EU dairy processors are more and more focusing on the production of specialty products with specific characteristics for specific markets.

EU import tariffs for dairy derivatives (Euro per Metric Ton)		
	HS Number	Tariff
Casein	3501 10	0%
	3501 90 00	9%
	3501 90 90	6.4%
Non Fat Dry Milk	0402 10 11	125.40
	0402 10 19	118.80
	0402 10 91	1.19 / kg + 27.50
	0402 10 99	1.19 / kg + 21.00
Whole Dry Milk	0402 21 11	135.70
	0402 21 17	130.40
	0402 21 19	130.40
	0402 21 91	167.20
	0402 21 99	161.90
Dry Whole Whey	0404 10 02	7.00
	0404 10 04	135.70
	0404 10 06	167.20
	0404 10 26	0.07 / kg + 16.80
	0404 10 28	1.31 / kg + 22.00
	0404 10 32	1.62 / kg + 22.00
Whey Protein Concentrates	0404 10 12	100.40
	0404 10 14	135.70
	0404 10 16	167.20
	0404 10 34	0.95 / kg + 22.00
	0404 10 36	1.31 / kg + 22.00
	0404 10 38	1.62 / kg + 22.00
Lactose	1702 11 00	14.00
	1702 19 00	14.00

Source: Dutch Product Board for Dairy (PZ) and sector sources.

Visit our website: our website **http://useu.usmission.gov/agri/** provides a broad range of useful information on EU import rules and food laws and allows easy access to USEU reports, trade information and other practical information.
E-mail: AgUSEUBrussels@usda.gov

Related reports from FAS EU

E36134	Dairy Annual	10/23/06
NL6039	EU market for whey derivates	10/20/06
PL6065	Poland Fined by the EU for Exceeding Milk Quota	10/11/06
GM6039	German Dairy Farmers Halved Overproduction in MY 2005/06	10/11/06
BG6009	Dairy Annual	10/20/06

These reports can be accessed through our website http://useu.usmission.gov/agri/ or through the FAS website http://www.fas.usda.gov/scriptsw/attacherep/default.asp.